

Idaho's Nutrient Criteria Development Plan

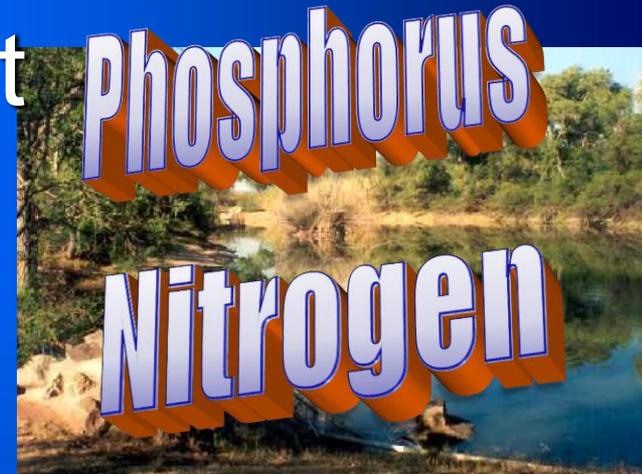
Idaho Department of
Environmental Quality

Objectives

- Define the problem
- Highlight past efforts
- Identify path forward

Issues Facing Numeric Criteria Development

- The Good, the Bad and The Ugly.....
- The Usual Suspects
- The Others
- Great Expectations



Dissolved Oxygen

Temperature

pH

Turbidity

Options Considered

- Adopt EPA's recommendations
- Develop numeric nutrient criteria that fully reflect conditions and protect specific designated uses
- Develop a unique system

Other Possibilities

- Nutrient criteria protective of beneficial uses with duration, magnitude and frequency components
- Stressor identification tools applied to criteria
- Ecological Risk Assessment
- Multi-layer criteria with thresholds that trigger in-depth monitoring tied to beneficial uses

History of Nutrient Work

- Previous work
 - Data mining effort by Brown and Caldwell (2002-2003)
 - Monitoring effort through EMAP West and State monitoring
 - Periphyton index development (1999-2004)
- Recognizing wide range of conditions throughout State
- Recognizing different water bodies require different approaches

Project Costs

- Brown & Caldwell Data Mining (2003-2004)
 - \$47,110
 - Received database and user interface
- Periphyton ID & Enumeration (1999-2004)
 - \$206,518
 - 353 site samples
- Periphyton Index (2004)
 - \$41,429
 - Development only

Project Costs

- 2004 Sampling Effort (104 sites)
 - \$14,000 in supplies
 - \$8,000 in personnel
 - \$30,000 in lab costs (\$18K for 65 peri samples)
 - Sampling done concurrent with BURP sampling (no extra crew costs)
- 2013 Sampling Effort (107 sites)
 - \$140,000 in personnel
 - \$27,000 in supplies and travel
 - \$124,000 in lab costs
 - Personnel includes crew costs

Total Costs

- State general funds - \$295K
- EPA Grants - \$340K

Current Status and Path Forward

- Using 2004 and 2013 project data
- Identify method for implementing narrative criteria
- Focused on wadeable streams

Implementing Narrative Criteria

- Trigger values for phosphorus, nitrogen, cyanotoxins or public complaints
- Monitor and assess response variables
- Source Analysis
- Listing Decision

Implementing Narrative Criteria

- Current strategy
 - Define visible slime and nuisance aquatic growth
 - Correlate to nutrient levels
 - Explore relationship of periphyton index to nutrient concentrations

Data Sources

- Statewide Random Survey Network 2004
 - Estimate nutrient levels in state
 - Idaho's Ambient monitoring program
 - 40 random sites
- Targeted Sites 2004
 - Idaho's Ambient monitoring program
 - 64 Targeted sites selected at regional discretion
- Reference Sites 2004
 - EMAP-Western Pilot
 - 22 Sites selected (BPJ) to represent least impacted conditions

Data Sources

- EMAP Probability Sites 2000-2003
 - EMAP-Western Pilot
 - 50 Sites selected using probability design
- Monitoring for Nutrient Effects 2013
 - USGS SPARROW model
 - Collected information on nutrient concentrations, chlorophyll a, biomass, periphyton, canopy closure, substrate and aquatic vegetative growth
 - 107 sites total for analysis
 - Focus on recreational use impacts